

Description

DISPOSABLE SOLID WASTE DETAINMENT PLUMBING TRAP

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a non-provisional application based on provisional application 60/460,790, filed April 7, 2003.

BACKGROUND OF INVENTION

[0002] The present invention relates to plumbing. More particularly, the invention relates to a plumbing trap for the collection and disposal of solid waste.

SUMMARY OF INVENTION

[0003] In general, the present invention in a first aspect provides a disposable solid waste detainment plumbing trap. The trap comprises (a) a container for collecting water and solid waste discharged from a sink through an inlet of the container, and for discharging water through a first outlet of the container, the inlet being constructed and arranged for direct connection to a first line connected to the sink,

and the first outlet being constructed and arranged for direct connection to a second line for waste disposal; (b) a lid that seals the container; and (c) a valve for venting air or water from the container, to relieve the pressure of air trapped in the container. The inlet and the first outlet of the container are disposed in and through the lid, and extend into the container to a distance below the lid. The valve is connected to a second outlet that extends into the container to a shorter distance below the lid than the first outlet, whereby the level of the water can be adjusted so that an end of the second outlet is either above or below the surface of the water. The pressure of the trapped air is relieved by opening the valve to discharge air or water from the container.

[0004] In a second aspect, the invention provides a method for disposing of solid waste discharged from a plumbing sink. The method comprises the following steps: (a) providing a container for collecting water and solid waste discharged from the sink through an inlet of the container, and for discharging water through a first outlet of the container, the inlet being constructed and arranged for direct connection to a first line connected to the sink, and the first outlet being constructed and arranged for direct connec-

tion to a second line for waste disposal; (b) providing a lid for sealing the container, the inlet and the first outlet being disposed in and through the lid, and extending into the container to a distance below the lid ; (c) providing a valve for venting air or water from the container, to relieve the pressure of air trapped in the container, the valve being connected to a second outlet extending into the container to a shorter distance below the lid than the first outlet, whereby the level of the water can be adjusted so that an end of the second outlet is either above or below the surface of the water, and the pressure of the air trapped in the container can be relieved by opening the valve to discharge air or water from the container; (d) connecting the inlet to the first line, and the first outlet to the second line; (e) discharging water and solid waste into the container through the first line and the inlet of the container; (f) adjusting the level of the water in the container; and (g) opening the valve to discharge air or water from the container.

BRIEF DESCRIPTION OF DRAWINGS

[0005] *FIGURE 1* is a schematic representation of a disposable solid waste detainment trap, made in accordance with the principles of the present invention, showing a drain valve

closed, and the trap connected to a sink and to waste disposal.

- [0006] *FIGURE 2* is a schematic representation of the trap shown in *FIGURE 1* after water has entered the trap.
- [0007] *FIGURE 3A* is a schematic representation of the trap shown in *FIGURE 1* after water and entrained solids have filled the trap to a first level.
- [0008] *FIGURE 3B* is a schematic representation of the trap shown in *FIGURE 1* after water and entrained solids have filled the trap to a second level.
- [0009] *FIGURE 4A* is a schematic representation of the trap shown in *FIGURE 3A*, showing the drain valve open.
- [0010] *FIGURE 4B* is a schematic representation of the trap shown in *FIGURE 3B*, showing the drain valve open.
- [0011] *FIGURE 5* is a schematic representation of the trap shown in *FIGURES 4A* and *4B*, with the trap disconnected from the sink and waste disposal.

DETAILED DESCRIPTION

- [0012] More specifically, reference is made to *FIGURE 1*, in which is shown a system for the collection and disposal of solid waste, the system being generally designated by the numeral 2. The system 2 comprises a disposable solid waste detainment trap 4 having a transparent or translucent

container 4a with an inlet 4b, a first outlet 4d, and a drain valve 12. The trap 4 includes a handle 6 connected to the container 4a by a wire or cord 7 attached by a fastener 9 to the container 4a. The lid 5 is pressure-fitted to the container 4a, for easy attachment to and detachment from the container 4a. The inlet 4b and the first outlet 4d are inserted in the lid 5 through openings therein (not shown). The drain valve 12 is connected through the lid 5 and an opening therein (not shown) to the interior of the container 4a by a first connecting member 12a coupled by connectors 12c to a second outlet 4f, and to the exterior of the container 4a by a second connecting member 12b. The inlet 4b is thread 4c connected to a line 8 from a sink 11, using solid schedule 40 plumbing. The first outlet 4d is thread 4e connected to a waste line 10, using solid schedule 40 plumbing. The inlet 4b is secured to the lid 5 by a first nut 8b. The sink line 8 is secured to the sink 11 by a second nut 8c. The first outlet 4d is secured to the lid 5 by a third nut 10b. The second outlet 4f extends just below the lid 5 a very short distance into the container 4a. The lid 5 and the container 4a are constructed and arranged for ready attachment to standard sink and waste lines 8 and 10. Thus, the threads 4c and 4e are one-

and-one-half-inch male plumbing threads, and the inlet *4b* and the first outlet *4d* are displaced from one another by the same distance as are the leads from a standard plumbing p-trap; viz., about three-and-one-half inches part. The system *2* as shown here in *FIGURE 1* is empty; i.e., filled only with air *13*. The capacity of the container *4a* is preferably from about three to about five gallons.

[0013] Reference is now made to *FIGURE 2*, in which the container *4a* is partially filled with water *14* from the sink line *8* via the inlet *4b*. As water *14* and entrained solids *16* enter the trap *4* through the sink line *8* and the inlet *4b*, the solids *16* settle to the bottom of the container *4a*, the water *14* forms a supernatant layer above the solids *16*, and water *14* flows out of the trap *4* through the outlet *4d* and the waste line *10*. The situation at this stage is shown in *FIGURE 3A*. A pocket of air *13* is trapped between the surface of the water *14* and the bottom of the lid *5*. The second outlet *4f* extends into this air *13* pocket, but not into the layer of water *14*.

[0014] At this point there are two options. The water *14* level is clearly visible through the wall of the container *4a*. The trapped air *13* can be vented through the drain valve *12*, relieving the internal pressure and permitting the water *14*

level to rise in the container *4a* by inflow from the lines *8* and *10*. This option is illustrated by *FIGURE 4A*. Alternatively, the water *14* level may be permitted to rise in the container *4a* until the end of the second outlet *4f* is below the surface of the water *14*. This situation is depicted in *FIGURE 3B*. Then, by opening the valve *12*, water *14* is vented via the second outlet *4f* and the connecting members *12a* and *12b* into a receptacle *18* disposed below the end of the second connecting member *12b*. This option is illustrated in *FIGURE 4B*. For either option, the end result is a relief of internal pressure in the container *4a* and discharge of residual water *14* from the lines *8* and *10* into the container *4a*. The first option is preferable in situations where no convenient receptacle for the vented water is available. The second option is preferable where such a receptacle is conveniently available, because it permits the container *4a* to be filled with more water before the water is vented. Once air *13* or water *14* has been vented, the disposable solid waste detainment trap *4* is disconnected from the sink and waste lines *8* and *10*, by disconnecting the male threads *4c* and *4e* from matching female threads *8a* and *10a*, as shown in *FIGURE 5*. By replacing the filled trap *4* with an empty trap *4*, the disposable solid waste

detainment trap 4 is again ready for use, as shown in *FIGURE 1*. This can be done quickly and easily, without spilling of or contact with water or solid waste.

[0015] While certain specific embodiments and details have been described to illustrate the present invention, it will be apparent to those skilled in the art that many modifications are possible within the scope of the claimed invention.